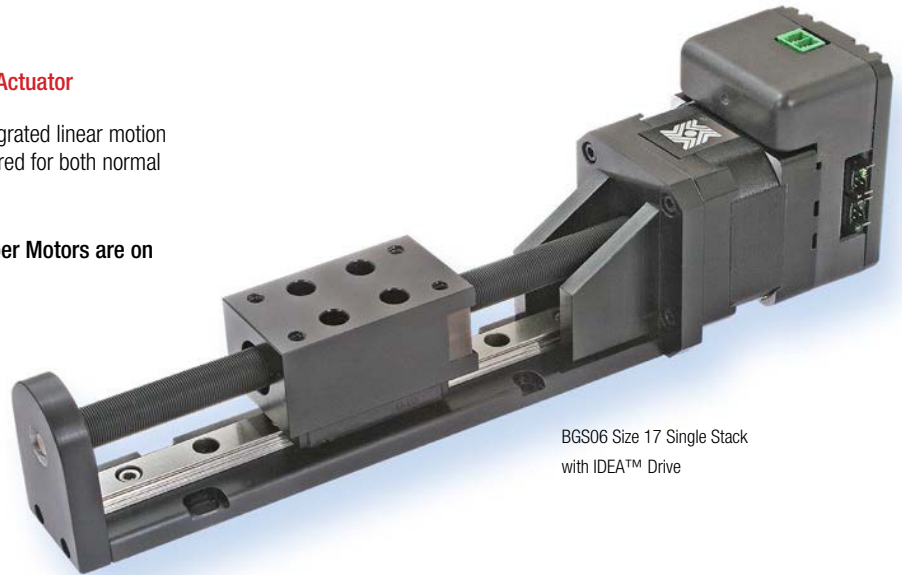


BGS06 Linear Rail

with Hybrid 43000 Series Size 17 Single or Double Stack Linear Actuator

The BGS™ Linear Rail combines many technologies into a single integrated linear motion platform. The system provides excellent load capability and is engineered for both normal and overhanging loads.

Technical specifications for Size 17 Hybrid Linear Actuator Stepper Motors are on page 3.



BGS06 Size 17 Single Stack
with IDEATM Drive

■ Specifications: BGS06

BGS with Hybrid Linear Actuator Motor	Size 17 Single and Double Stack*
Max. Stroke Length	24 in (610 mm)
Max. Load (horizontal)	135 lbs (600 N)
Roll Moment	11.62 lbs-ft (15.75 Nm)
Pitch Moment	7.93 lbs-ft (10.75 Nm)
Yaw Moment	9.15 lbs-ft (12.4 Nm)

* Available with an optional programmable IDEATM Drive.

Nominal Thread Lead		Lead Code
inches	mm	
0.050	1.27	0050
0.079	2.00	0079
0.100	2.54	0100
0.157	4.00	0157
0.197	5.00	0197
0.200	5.08	0200
0.250	6.35	0250
0.375	9.53	0375

Nominal Thread Lead		Lead Code
inches	mm	
0.400	10.16	0400
0.472	12.00	0472
0.500	12.70	0500
0.750	19.05	0750
0.984	25.00	0984
1.000	25.40	1000
1.200	30.48	1200

To determine what is best for your application see the [Linear Rail Applications Checklist](#).

■ Identifying the BGS Part Number Codes when Ordering

BG	S	06	B	G	0079	XXX
Prefix	Frame Style	Frame Size Load*	Lubrication	Drive / Mounting	Nominal Thread Lead Code	Unique Identifier
BG = Ball Guide System	S = Standard	06 = Max.static load 135 lbs (600 N)	B = TFE wear resist, dry lubricant Black Ice®	M = Motorized G = IDEATM integrated programmable drive – USB communications J = IDEATM integrated programmable drive – RS485 communications	0079 = .079-in (2.0) (see Lead Code charts above)	Proprietary suffix assigned to a specific customer application. The identifier can apply to either a standard or custom part.

NOTE: Dashes must be included in Part Number (–) as shown above. For assistance call our Engineering Team at 603 213 6290.

Carriage holes available in Metric sizes
M3, M3.5, M4

Single Stack

Size 17: 43 mm (1.7-in) Hybrid Linear Actuator (1.8° Step Angle)

Wiring	Bipolar			Unipolar**	
Programmable Drive	IDEA™ Drive Option Available			Not Applicable	
Winding Voltage	2.33 VDC	5 VDC	12 VDC	5 VDC	12 VDC
Current (RMS)/phase	1.5 A	700 mA	290 mA	700 mA	290 mA
Resistance/phase	1.56 Ω	7.2 Ω	41.5 Ω	7.2 Ω	41.5 Ω
Inductance/phase	1.9 mH	8.7 mH	54.0 mH	4.4 mH	27.0 mH
Power Consumption	7 W				
Rotor Inertia	37 gcm ²				
Insulation Class	Class B (Class F available)				
Weight	8.5 oz (241 g)				
Insulation Resistance	20 M Ω				

* 43000 Series Single Stack with IDEA programmable drive. Contact Haydon Kerk if higher voltage motor is desired.

** Unipolar drive gives approximately 30% less thrust than bipolar drive.

Size 17 External Linear

Size 17 External Linear
with programmable IDEA Drive

IDEA™ Drive software
is simple to use with
on-screen buttons and
easy-to-understand
programming guides.

- Fully Programmable
- RoHS Compliant
- USB or RS-485 Communication
- Microstepping Capability – Full, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64
- Graphic User Interface
- Auto-population of Drive Parameters
- Programmable Acceleration/Deceleration and Current Control

For more information see the [IDEA™ Drive Data Sheet](#)

Double Stack

Size 17 Double Stack: 43 mm (1.7-in) Hybrid Linear Actuator (1.8° Step Angle)

Wiring	Bipolar		
Programmable Drive	IDEA™ Drive Option Available		
Winding Voltage	2.33 VDC	5 VDC	12 VDC
Current (RMS)/phase	2.6 A	1.3 A	550 mA
Resistance/phase	0.9 Ω	3.8 Ω	21.9 Ω
Inductance/phase	1.33 mH	8.21 mH	45.1 mH
Power Consumption	13.2 W		
Rotor Inertia	78 gcm ²		
Insulation Class	Class B (Class F available)		
Weight	12.5 oz (352 g)		
Insulation Resistance	20 M Ω		

* 43000 Series Single Stack with IDEA programmable drive. Contact Haydon Kerk if higher voltage motor is desired.

** Unipolar drive gives approximately 30% less thrust than bipolar drive.

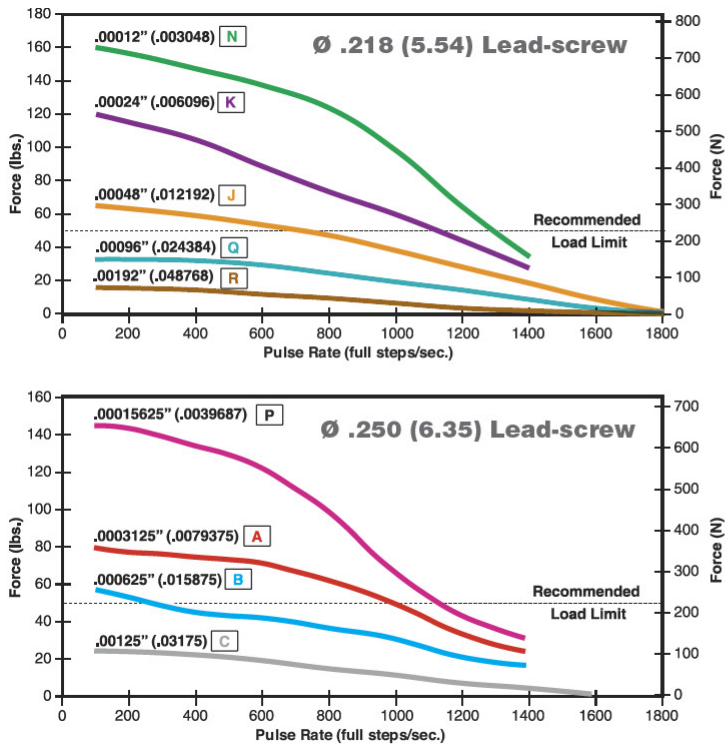
Size 17 Double Stack
External Linear

Double Stack

■ 43000 Series Size 17 Linear Actuator

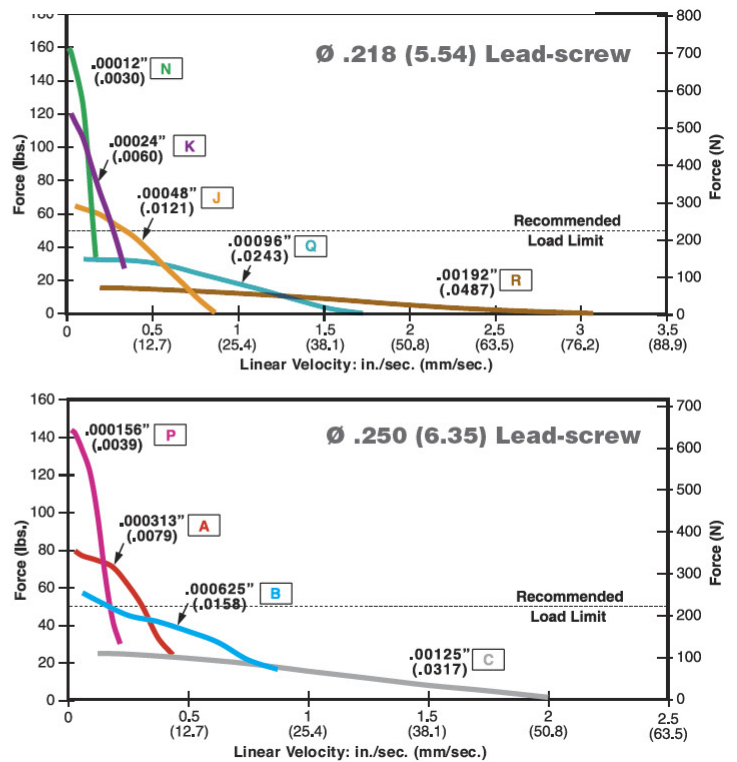
FORCE vs. PULSE RATE

– Chopper – Bipolar – 100% Duty Cycle



FORCE vs. LINEAR VELOCITY

– Chopper – Bipolar – 100% Duty Cycle

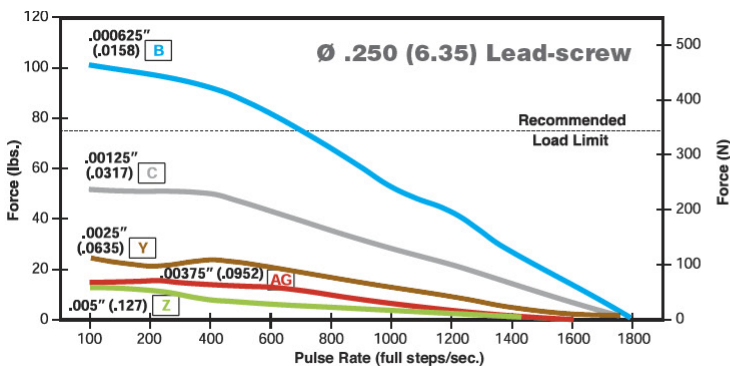


Double Stack

■ 43000 Series Size 17 Linear Actuator

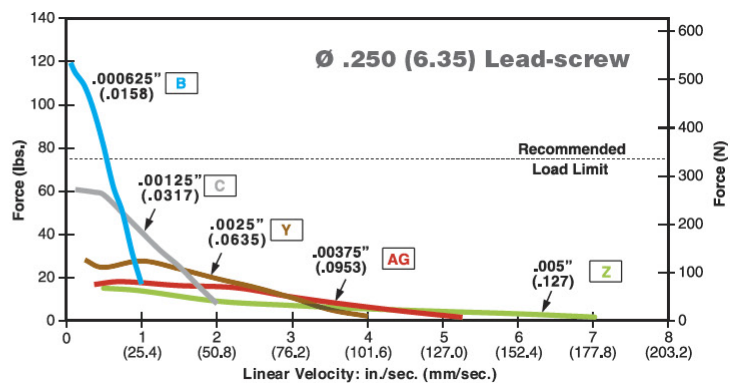
FORCE vs. PULSE RATE

– Chopper – Bipolar – 100% Duty Cycle



FORCE vs. LINEAR VELOCITY

– Chopper – Bipolar – 100% Duty Cycle



NOTE: All chopper drive curves were created with a 5 volt motor and a 40 volt power supply.

Ramping can increase the performance of a motor either by increasing the top speed or getting a heavier load accelerated up to speed faster. Also, deceleration can be used to stop the motor without overshoot.

With L/R drives peak force and speeds are reduced, using a unipolar drive will yield a further 30% force reduction.

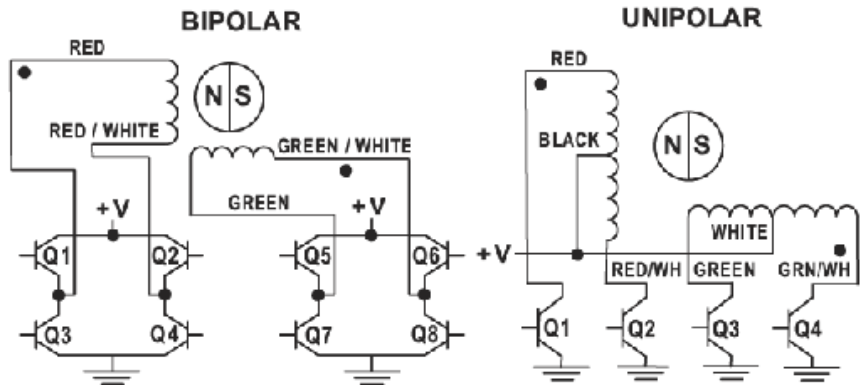
28000 Series Size 11 and 43000 Series Size 17 Linear Actuators

Hybrids: Stepping Sequence

Hybrids: Wiring

	Bipolar	Q2-Q3	Q1-Q4	Q6-Q7	Q5-Q8
Unipolar	Q1	Q2	Q3	Q4	
Step					
1	ON	OFF	ON	OFF	
2	OFF	ON	ON	OFF	
3	OFF	ON	OFF	ON	
4	ON	OFF	OFF	ON	
1	ON	OFF	ON	OFF	

Note: Half stepping is accomplished by inserting an off state between transitioning phases.



Size 17 43000 Series • Integrated Connectors



Hybrid Size 17 linear actuators are available with an integrated connector. Offered alone or with a harness assembly, this connector is RoHS compliant and features a positive latch in order for high connection integrity. The connector is rated up to 3 amps and the mating connector will handle a range of wire gauges from 22 to 28. This motor is ideal for those that want to plug in directly to pre existing harnesses. In addition to standard configurations, Haydon Kerk Motion Solutions can custom design this motor to meet your specific application requirements.

Motor Connector:
Mating Connector:

JST part # S06B-PASK-2
JST part # PAP-06V-S
Haydon Kerk Part #56-1210-5 (12 in. Leads)
JST part number SPHD-001T-P0.5

Wire to Board Connector:

Pin #	Bipolar	Unipolar	Color
1	Phase 2 Start	Phase 2 Start	G/W
2	Open	Phase 2 Common	-
3	Phase 2 Finish	Phase 2 Finish	Green
4	Phase 1 Finish	Phase 1 Finish	R/W
5	Open	Phase 1 Common	-
6	Phase 1 Start	Phase 1 Start	Red

Dimensional Drawing

43000 Series Size 17 Linear Actuator with Integrated Connector

Dimensions = (mm) inches

